

# IAOC Workshop in La Serena: Galactic Star Formation across the Stellar Mass Spectrum

The growing number of first-class astronomical research facilities make Chile also a more and more attractive place for hosting scientific conferences with broad international profile and participation. Originally started as an informal, biannual workshop intended to foster the scientific interaction among the observatories in Chile, the “ESO/Tololo/Las Campanas” workshop has broadened its basis (and sponsoring institutions!), and now includes the National Radio Astronomy Observatory NRAO (as one of the main participants in the ALMA project), and the Gemini Observatory. This collection of observatories has been dubbed IAOC, International Astronomical Observatories in Chile. As its first conference, the IAOC organized a workshop on “Galactic Star

Formation across the Stellar Mass Spectrum”, held in La Serena from March 11 to 15. The aim of the workshop was to join together the most recent observational and theoretical results of Galactic star formation into a coherent picture of how stars form as a function of mass, with special focus on recent progress made in the areas of intermediate- and high-mass star formation. The high interest in the topic is documented by more than 180 conference participants, 80 from abroad. Ten invited review speakers explored the similarities and differences between low-, intermediate-, and high-mass star formation in the context of:

- Structure and Initial Conditions of the ISM and Molecular Clouds

- Initial Mass Function, Star Formation Rate, and Star Formation Efficiency
- Star Formation Theory and Supporting Observations
- Disk and Planet Formation around Stars of Increasing Mass
- Energetics (Jets, Winds, Outflows, Infall, Ionizing Radiation)
- Multiplicity of Formation
- Future Star Formation Studies at the International Observatories in Chile

Latest research results were shared in 40 contributed talks and 35 poster presentations, and an ASP conference proceedings book is already in press. Excursions to the Gemini Observatory site, and the nearby “pisco” vineyards complemented this vivid and successful workshop.

*M. STERZIK*

## Astronomical Virtual Observatories discussed in Chile

After the meeting organized in Santiago by Conicyt in July 2001, “Large Databases for Astronomy”, the next step to be discussed was the concept of Virtual Observatory: given a set of databases, how can they be pooled into one large data resource to be searched with appropriate data mining tools? Such concepts are currently being developed both in Europe and in the US and it was felt very important that the astronomical community working in Chile be aware of and get a chance to contribute to these new visions about the astronomy of tomorrow.

Therefore, a one day Topical Meeting “Astronomical Virtual Observatories” was organized by ESO in Santiago, with the sponsorship of Conicyt, AURA, NOAO/CTIO and Gemini, on April 22nd 2002.

Attendees were from CTIO, ESO, PUC, Universidad de Chile, Universidad de Concepción, Universidad of Valparaíso and from the REUNA net-

work consortium. After the opening words by D. Alloin (Office for Science, ESO) and a brief address by C. Lazo (Executive Director Conicyt), the participants enjoyed a series of enlightening talks. The European AVO project was presented by P. Quinn (DMD, ESO), while the NVO project developed in the USA was introduced by T. Boroson (NOAO). Then we had a report by L. Campusano (U. Chile/Conicyt) about the initiatives of Conicyt on large astronomical databases in 2001. In the afternoon, the ASTROVIRTEL experiment was reported on by P. Benvenuti (ST/ECF).

Finally, three talks were devoted to archive and pipeline setup: the NOAO survey archive by D. Shaw (NOAO), the pipeline and real-time archiving at NOAO by C. Smith (CTIO) and the ESO astronomical archive by B. Pirenne (DMD, ESO). Lively discussions took place on various points including: new types of astronomical research to be

expected from VOs, data quality assessments, bandwidth accessibility in Chile, ways of involving the Chilean community in this effort/challenge, etc.

We ended the Topical Meeting with some Chilean wine tasting in order to thank the lecturers who had travelled such a long way to share with us their vision and enthusiasm about the Virtual Observatory.

Thanks also go to the secretary of the Office for Science and to the members of the IT/computing team in Vitacura who took care of the practical organization of this Topical Meeting and of the accompanying tutorial on ESO archive practice which had been organized for students at ESO on Friday April 19.

The speakers’ contributions can be found on the ESO/Santiago webpage at: <http://www.sc.eso.org/santiago/science/VO2002.html>

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## Hunting for Planets – GENIE Workshop at Leiden University

The search for exo-planets has had extra-ordinary success in the last 7 years. About 80 objects classified as planets have been unambiguously detected, orbiting around nearby (10-20 pc) sun-like stars. However, finding earth-like planets requires observations

from space. Therefore, both ESA and NASA have started the technological development for space interferometers looking for a sister Earth. For ESA’s DARWIN project, European industry is working on laboratory experiments to verify the concept of Nulling interferom-

etry which is well suited for directly detecting planets.

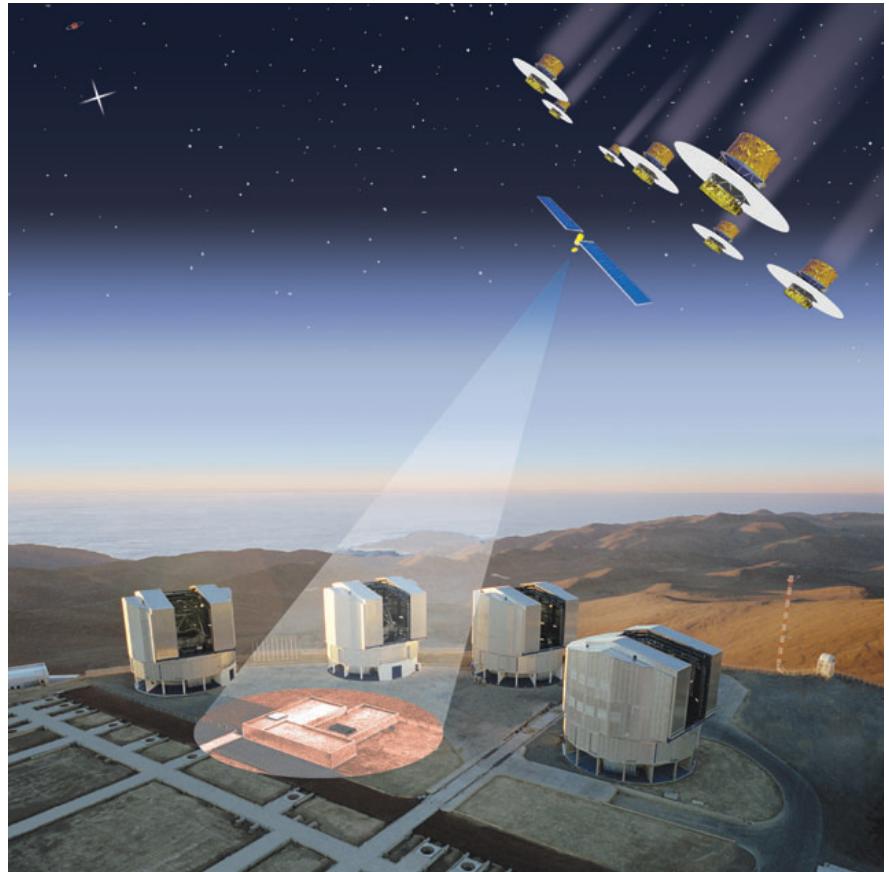
In preparation for DARWIN, ESA and ESO have decided to collaborate on GENIE, the Ground Based European Nulling Interferometer Experiment for the VLTI. The goal is both to test the

necessary technology in a real interferometer environment and to become a full facility science instrument for the VLTI.

From June 3–6 a workshop took place at Leiden University, jointly organised by NEVEC, ESA and ESO, to discuss the Nulling technology and the science that is expected with GENIE. The number of participants, 83 in total, exceeded the expectations by far and demonstrated the large interest of the community in this subject.

The GENIE concepts discussed during the workshop concentrate on a two-four-way beam combiner operating in the infrared (L, M or N band). Although the N band is better suited for detecting planets from space, on the ground the calibration of the enormous thermal background poses a severe problem. Therefore the question remains open as to whether the L/M bands are better suited for DARWIN system tests. The science objective of GENIE is to observe a couple of hundred candidate stars for DARWIN in order to measure the zodiacal light and bright extra-solar planets. Many other science programmes (AGN, binary stars, T Tauri disks around young stars, or debris disks around main sequence stars) with faint matter close to a bright source could also take advantage of GENIE. Kick-off for GENIE is in summer 2002, and the instrument is scheduled for commissioning in 2006.

Andreas Glindemann



The poster image for the GENIE workshop held recently in Leiden. It shows an artist's impression of a possible DARWIN space interferometer superimposed on a photograph of the VLT/VLTI, with the central beam combining satellite highlighting the VLTI beam combination laboratory. Figure courtesy of NEVEC.

## Young Stars in Old Galaxies – a Cosmic Hide and Seek Game

A group of researchers around M. Kissler-Patig (ESO) studies the formation and evolution history of galaxies through the study of their globular clusters. Recently, the combination of optical and near-infrared images allowed them to detect a “young” population in a galaxy that was believed to be old. Are some old ellipticals hiding their true story? (See ESO Press Release 11/02.)

The figure shows a colour composite of the elliptical galaxy NGC 4365, prepared from two exposures with the HST and one from the VLT. Many of the objects seen are stellar clusters in this galaxy. There are also a large number of background galaxies in the field. The distribution of “old” (red circles) and “young” (blue circles) stellar clusters in NGC 4365 are shown.

